Work Ord October-07-13		8047	XF	*1108	8047,*		'·				Page 1
Item ID: Revision ID: Item Name:	646.3513 U/R Strut	n unduran en ruddada sir u t		Accept	*N900	<u>040</u>	100)* s	etup Star	17	S1* * S2*
Start Date: Required Date: Reference:	10/07/13 : 10/07/13	Start Qty: 5.00 Req'd Qty: 5.00	*5* *5*	*6*	Cust Item I Customer:	D:					
Approvals:	Process Plan: MUS QC:					ate:	; 	R	aun Star Stop	, IN	R1* R2*
Sequence ID/ Work Center II	D	Operation Description	1.1.1	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr 646.3500		vision Nbr C(ECN) OR	2 tzcul	W							
*110 *110* Waterjet				0.00			*	_6_	U		A13·11·02
FLOW CNC Water	jet	Memo 1-Cut 646.3 Dwg Rev: Prog Rev:									13:11:02
!		2-Deburr if	necessary								
*120 *120*		QC2- Inspect parts off m	nachine FAI/FAIB	0.00				6	ن		Ac
QC Ouality Control		Мето		0.00							13:11.0

			DQA:	Date:	
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE			

											QA Closed:	Date	2:
Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	 lo					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	i	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update	e	Initial	Ac	tion	Sign &		
Cause	ם	ate	Step	Qty	,	or Non-conformance	Ct	nief Eng	Desc	ription -	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator												:	
Material								-					
Setup													
Other													•
Process													·
Supplier							-						
Training				Ì	,								
Unapproved													
	·						FAU	LT CATE	GORY				
Landi	ng Gear					General	*:	_			_	·	
	Ber	ding				Bend		Grain			Ovalized		Pressure/Forced
	Cer	tre No	t Concer	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cra	cks				Broken/Damaged		Inspect	on Incomplete		Part Incorred	et [Weld
	Cru	shed/0	Crimped			Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuf	Cuffs				Contamination	\mathcal{T}	Mainte	enance		Part Moved	_	_
	Hea	Heat Treat				Countersink		Mislabe	led		Positioned V	/rong	
	Inspection Strip in Tube			Cut Too Short		Misread	i		Power Loss/:	Surge	Other		
	Ripples in Bend Drill Holes				Drill Holes		Offset						
	Torque Waves in Extrusion Drawing				Drawing		Out of 0	Calibration					
	Turning Sequence Finish					Finish		Out of S	Sequence				
	Wa	ve/Tw	ist in Tuk	e		Folio		Outside	Dimensions				

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0.00

Memo

QC

Quality Control

NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE QA Closed: Date: Part No.	
Work Order: Part No. NCR No. Root Cause Date Step Qty Description of work order update Cause Doc/Data Equip/Tooling Operator Material DISPOSITION Rework Rework Skid-tube Machining Small Fab Prod. Eng. Coor. Water Jet Machining Small Fab Prod. Eng. Coor. Quality Thermoforming Large Fab Composite Sign & Verification QC Inspect	
Work Order: Part No.	
Rework Skid-tube Crosstube Prod. Eng. Coor. Quality Scrap NCR No. NCR No. Description of work order update Cause Date Step Qty Description of work order update Equip/Tooling Operator Material Material Skid-tube Crosstube Matchining Small Fab Prod. Eng. Coor. Quality Action Sign & Supplier Other	
Cause Date Step Qty or Non-conformance Chief Eng Description Date Verification QC Inspect Doc/Data	ality
Doc/Data Equip/Tooling Operator Material Material Equip/Tooling Eq	•
Equip/Tooling Operator Material	spector
Other Process Supplier Supplier Supproved Supproved Supproved Supplier Supproved Suppr	
FAULT CATEGORY	
Landing Gear General	
Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/C Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld	

Instructions Incomplete/Unclear

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Wrong Stock Pulled

Other

Part Lost/Missing

Positioned Wrong

Power Loss/Surge

Part Moved

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Crushed/Crimped

Inspection Strip in Tube

Torque Waves in Extrusion

Cuffs

Heat Treat

Burrs

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Work Orde		08047		*108				Page 3			
Item ID: Revision ID: Item Name:	646.3513 U/R Strut			Accept	*N900	040	100)* s	etup Star Stop	I M	S1* S2*
Start Date: Required Date: Reference:	10/07/13 10/07/13	Start Qty: 5.00 Req'd Qty: 5.00	*5* *5*		Cust Item I Customer:	D:				1 4	
Approvals:		an:				ate:	- 49	R	tun Star Stop	171	R1* R2*
Sequence ID/ Work Center II	D	Operation Description Weld per dwg A/R Alu	ninum rod Batch: M &	Set Up/ Run Hours 50940.00	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 Large Fab			o plate as per dwg. DT98 ere tube is punch.	0.00				×6			MAL
*170 *170*		QC9- Inspect visual per o	QS1004- Fusion Welds	0.00				6	13-11-	<u>k</u>	DAS . 9 9-89
Quality Control		QC5- Inspect part compl	eteness to sten on W/O	0.00							DAS
*1\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Memo	eteriess to step on W/O	0.00				C	13-11	16	9-89

Quality Control

NCR: Y	es _.	/ No				WORK ORDER NON-C	.Or	NFOR	VIANCE / UPI	DAIE	QA Closed:	Dat	e:	
Work Orde	ar.	_				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS		
Part N	ا.oo					Rework Scrap Use-as-is Work Order Update		Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Eng	ineering Quality Other	
Root					Descri	ption of work order update	П	nitial	Act	ion	Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Descr	ription	Date	Verification	a	C Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved														
						F	AUL	T CATE	GORY					
Landi	ng (1				General	_	1		_	1	г	_	
	ding Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion			Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	ion Incomplete ions Incomplete/U enance eled	Jnclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	ct issing Vrong	Temp Weld	ure/Forced erature/Cure g Stock Pulled
		Turning Sequence				Finish		Out of S	· · · · · · · · · · · · · · · · · · ·					

Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

Folio

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Work Orde		08047		*108	RN47*						Page 4
Item ID: Revision ID: Item Name:	646.3513 U/R Strut			Accept	*N900	040	100)* :	Setup Start Stop	I VI	S1* S2*
Start Date: Required Date:	10/07/13 10/07/13	Start Qty: 5.00 Req'd Qty: 5.00	*5* *5*		Cust Item I Customer:	D:					
Reference: Approvals:	Process Pl	an:	Date:		D:	ate:		> . I		*N	R1*
	QC:		Date:	SPC (Y/N):	D:	ate:			Stop	*N	R2*
Sequence ID/ Work Center II)	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220 SprayPaint		Memo		0.00				6	Ø	Ø_	Af 13-12-
Spray Painting		Prime as per	a 7401								:
230		QC14- Inspect Spray Pai	int	0.00				6.			
QC Quality Control		Memo		0.00				<u>D.</u>			<u> [[v]n/] </u>
* 2 40				0.00				6x	DAS 28 9-89	13-1	2-9
Packaging Packaging		Memo ***IDENTI	FY AS PER APICAL M	0.00 PP-120 BY STAMPING T	HE P# AND			<i>-</i> /	3-03	,	

IDENTIFY AS PER APICAL MPP-120 BY STAMPING THE P# AND REV

5T523A

NCR:	'es	/ No				WORK ORDER NON-O	100	VFORM	ANCE / UPD	ATE				
						<u>.</u>					QA Closed:	Da	te:	
Work Orde	or.					DISPOSITION				AGAINST DI	EPARTMENT,	/PROCESS		
Part N	٠ ١٥٠					Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube Machining oforming Large Fab	Crosstube Small Fab Finishing Composite	⊣	Water Jet d. Eng. Coor. re/Packaging Supplier	Qua	ering ality ther
Root					Descri	otion of work order update		Initial	Actio	on	Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descrip	otion	Date	Verification	n QC Ins	spector
Doc/Data														
Equip/Tooling														
Operator			Ì											
Material														
Setup														
Other														
Process														
Supplier			İ										1	
Training												ŀ		
Unapproved							<u> </u>					<u> </u>		
							AUL	LT CATE	GORY					
Landi	_	ı			_	General	_	1		_	٦	!	<u> </u>	
	-	Bending			- L	Bend	-	Grain		<u> </u>	Ovalized		Pressure/F	
		Centre No	ot Concei	ntric to	o/s -	BOM/Route	-	Hardwa		_	Over/Under		Temperatu	ure/Cure
		Cracks				Broken/Damaged	<u> </u>	4 '	on Incomplete	, <u> </u>	Part Incorre		Weld	
	<u> </u>	Crushed/	Crimped		<u> </u>	Burrs	-	-1	ions Incomplete/Ur	nclear	Part Lost/M	issing	Wrong Sto	ck Pulled
	<u> </u>	Cuffs				Contamination	\vdash	Mainte		-	Part Moved			
	<u> </u>	Heat Trea		- 1	-	Countersink	\vdash	Mislabe		<u> </u>	Positioned V			
	 	Inspectio		Tube	<u> </u>	Cut Too Short	\vdash	Misread	I	<u> </u>	Power Loss/	Surge	Other	
	├ ┤ ''				Drill Holes	Offset					·	, **		
l .	Torque Waves in Extrusion					Drawing		JOut of C	Calibration					

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish Folio

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Work Orde		08047		*108					Page	5			
Item ID: Revision ID: Item Name: Start Date: Required Date:	646.3513 U/R Strut 10/07/13	Start Qty: 5.00 Req'd Qty: 5.00	*5* *5*	Accept	*N900 Cust Item II Customer:		100) * \$	Setup S	Start Stop	*N:	S1* S2*	
		an:	Date:	Tooling: SPC (Y/N):	Da	te:		I		Start Stop		R1* R2*	
Sequence ID/ Work Center I 250 *250* QC Quality Control	Operation		Work Order Release	Set Up/ Run Hours 0.00	Tool ID	Tool #	Plan Code	Accept Qty	<i>//</i>	- נער נ	Reject Number 13/12/		_

								•				DQA:	Da	te:	
NCR: Y	⁄es	/ No				WORK ORDER NON-C	O	NFORM	/ANCE / UP	DATE					
												QA Closed:	Da	te:	
 Work Orde	er.					DISPOSITION				AGAINST	DE	PARTMENT	/PROCESS		
Part N	۔ ِ No.					Rework Scrap Use-as-is Work Order Update	Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite		-1	Water Jet d. Eng. Coor. re/Packaging Supplier		Engineering Quality Other	
Root					Descri	ption of work order update	П	Initial	Ac	tion		Sign &	,		
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved															
						F	AUL	LT CATE	GORY						
Landi						General	_				_				l
	-	Bending Centre N	ot Conce	ntric to (o/s	Bend BOM/Route	\vdash	Grain Hardwa	re		-	Ovalized Over/Under	tolerance		Pressure/Forced Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	on Incomplete			Part Incorre	ct		Weld
		Crushed/Crimped				Burrs		Instruct	ions Incomplete/	Unclear		Part Lost/Mi	ssing		Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance			Part Moved			-
		Heat Trea	at			Countersink		Mislabe	led			Positioned V	Vrong		
		Inspectio	•	Tube		Cut Too Short		Misread	I			Power Loss/	Surge		Other
i	1	Ripples in	n Bend	•		Drill Holes	1	Offset							

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Folio

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Work Order ID:

108047

Parent Item:

646.3513

Parent Item Name:

Strut

Start Date: 10/07/13

Required Date: 10/07/13

Start Qty: 5.00

Required Qty: 5.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S12GA 304/316 0.100" Sheet		Purchased	No	·			sf	137.5300	· · · · · · · · · · · · · · · · · · ·	-0.1473685		Au_	1311.
				Location		Loc Qty	<u>Lo</u>	c Code					
				MAT		0.6							
				1130	077	0.6							
				MAT019		136.93							
				1130		76.13			_	n		i —	
				m12	6309	60.8			19	6309 -	\rightarrow	~ L (
1304TR0.500W.049		Purchased	No		 -		f	320.9109		5.263158			
04 RD Tube .500 x .049\	N												
				Location		Loc Oty	<u>Lo</u>	c Code					
				GA		43.66							
				120	633	43.66							
				MAT017		277.250916					-		
				119		0.000016							
				123		86.0547							
				125:	Phone:	26.534					13	-//-	18)
				_m12	6466	164.6622					12	11	

											DQA:	Date:	
NCR: Y	⁄es	/ No				WORK ORDER NON-	COI	NFORI\	AANCE / UPDA				
			,	•		<u> </u>					QA Closed:	Date:	
Work Orde	er:	4			:	DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	- No					Scrap Machining Thermoforming Work Order Update Large Fab			Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other	
Root					Descri	ption of work order update		Initial	Actio	n	Sign &		
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Descrip	tion	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													
						F	AUL	LT CATE	GORY				
Landi	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat				o/s	General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Grain Hardware Inspection Incomplete Instructions Incomplete/Unclear Maintenance Mislabeled			Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V Power Loss/	ct sissing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled
	Inspection Strip in Tube Ripples in Bend				-	Drill Holes	Misread Offset				Jrower Loss/	onige	Other

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

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DART AEROSPACE LTD	Work Order:	108047
Description: Strut	Part Number:	646.3513
Inspection Dwg: 646,3500Rev: * N/C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Tolerance Actual Accept Reject Method of Inspection Comments								
Dimension	1016	ance	Dimension		110,000	Inspection		
200	+1-	:030	2.00	_		V	DKM-01	
2.00	+1-	1030	2,00			V		
		_,,						
							·	
	1			210				
			L	DAS-	L			

Measured by: A_{α}	Audited by:	9-89	Preliminary Approval:	
Date: 13.11.02	Date:	13114	Date:	

Rev	Date	Change	Revised by	Approved
É	10.04.14	Added preliminary approval	KJ	

\$ 10.04.15

APICAL INDUSTRIES, INC. TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	ENGINEERING CHANGE DWG NO. 646.3500 R DWG TITLE: APPROVED BY: ENGR TO THE SEASON: REVISED GEOMETR	REVINC BY STRUT	QC U SEFF	CURRENT ORDER AND STOCK
SHEET 2 IS:	54*		646.3512 SHOWN 646.3513 DPPOSITE	
(8 25)	7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60	200 28.	37	8047 MLJ 13-10-08
DOCUMENTS EFFECTED:	□ MDL □ INSTALL INSTRUC	☐ ICA ☐ FMS ☐ B☐M ☐ MA	GE CATEGORY DER REVIE NJOR 🛭 MINOR 💢 TYES	W REQUIRED XI NO

		SHEET 1-OF 1
APICAL	DWG NO. 646.3500 REV:N/C PREPARED S. HUFF DATE: 01/0	15/09 EFFECT ON DWG
INDUSTRIES, INC.	DWG TITLE: STRUT	
TINDUS INTES, TINE.	APPROVED BY: ENGR Bran MFG Like QC	EFF: NEXT ORDER
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED ANGLE OF 646,3512 & 646,3513 FOR BETTER PILMENT	
SHEET 2, IS	72 38 72 646 3512 SHOWN 646 3513 OPPOSITE 10	
	062 - 4.95	
DOCUMENTS EFFECTED:	CHANGE CATEGORY DER R	REVIEW REQUIRED YES Ø NO
is to		

Linda Lacelle

From:

Pablo Bravo

Sent:

September-13-13 12:11 PM

To:

Jean-Luc Menard

Cc:

Linda Lacelle

Subject:

Re: STRUTS 646.3500

JL,

Go ahead and manufacture the parts you need to replenish stock. I'll try to get a date for the drawing release ASAP.

Pablo

On Sep 13, 2013, at 8:31 AM, "Jean-Luc Menard" < imenard@dartaero.com > wrote:

Hi Pablo,

As discussed yesterday, dwg's are under review.

Just need your blessing so we can manufacture to meet current orders.

THX

JL

Jean-Luc Ménard

Production Engineering Supervisor

DART AEROSPACE

T 1613632-5200 > 227

F 1 613 632-5246

1 800 556- 4166

www.dartaerospace.com

<image001.png>

DART AEROSPACE LTD	Work Order:	<u> </u>	
Description: Strut	Part Number:	108647	46.3513
Inspection Dwg: 646,3500 Rev: N/C		Page 1 of 1	_

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tole	rance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.00"	+1-	, 030	2.01	_		ν	1×m ~ 01
2.00"	+1-	1030	_	-		ν	
.100"	+1-	ريري	. 101				
			· · · · · · · · · · · · · · · · · · ·				
					<u> </u>		
					i		
				68-6 22			,

			20		
Measured by:	M	Audited by:	1 J	Preliminary Approval:	
Date:	13.11.02	Date:	13/12/04	Date:	

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	